

Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 11-22 and 63-120 are pending in the application, with claims 63, 71, 91, and 107 being the independent claims. Claims 1-10 and 23-62 are sought to be cancelled without prejudice to or disclaimer of the subject matter therein. New claims 63-120 are sought to be added. These changes are believed to introduce no new matter, and their entry is respectfully requested. Support for the amendments can be found at least in the cancelled claims and throughout the specification. Specifically, support for claims 63-120 be found, *inter alia*, at pages 7-8, 12-13, 19, 27, 52-53, and 59-60.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

The Rejections under 35 U.S.C. § 112, First Paragraph

The Examiner has rejected claims 1(a), 2, 9, 32, and 47-52 under 35 U.S.C. §112, first paragraph, because the specification is allegedly not enabled for the full scope of the claims (Office Action, pages 3-4). Applicants respectfully traverse this rejection.

The Examiner has taken the position that:

the lack of direction and guidance presented in the specification regarding creation of all possible mutations in all possible reverse transcriptases which will result in increased enzyme fidelity, decreased nucleotide misincorporation and decreased TdT activity, or a

combination of any of these functional characteristics, the absence of working examples directed to making such mutations in reverse transcriptases other than M-MLV RT, the unpredictability of the effects of mutations on protein structure and function (see references below), undue experimentation would be required of the skilled artisan to make and use the claimed invention in its full scope.

Office Action, page 4, lines 1-8. Applicants respectfully and emphatically disagree.

However, in the interest of expediting the prosecution of allowable subject matter, claims 1, 2, 9, 32, and 47-52 have been cancelled. Therefore this portion of the rejection is rendered moot. By cancellation of these claims, Applicants do not acquiesce with the Examiner's position but only wish to advance the prosecution of the present application. Withdrawal of this portion of the rejection is respectfully requested.

The Examiner has rejected claims 25-28 under 35 U.S.C. §112, first paragraph, because the specification is allegedly not enabled for the full scope of the claims (Office Action, pages 4-5). Applicants traverse this rejection.

The Examiner contends that:

[d]ue to the large quantity of experimentation necessary to determine all possible mutations in all possible reverse transcriptases which will result in increased enzyme fidelity up to 50-fold over the unmodified enzyme, the lack of direction and guidance presented in the specification regarding creation of all possible mutations in all possible reverse transcriptases which will result in increased enzyme fidelity up to 50-fold over the unmodified enzyme, the absence of working examples directed to making such mutations in reverse transcriptases other than M-MLV RT, the unpredictability of the effects of mutations on protein structure and function (see references above), undue experimentation would be required of the skilled artisan to make and use the claimed invention in its full scope.

Office Action, page 5, lines 10-18. Applicants respectfully and emphatically disagree.

However, in the interest of expediting the prosecution of allowable subject

matter, claims 25-28 have been cancelled. Therefore, this portion of the rejection is rendered moot. By cancellation of these claims, Applicants do not acquiesce with the Examiner's position but only wish to advance the prosecution of the present application. Withdrawal of this portion of the rejection is respectfully requested.

The Rejection under 35 U.S.C. § 112, Second Paragraph

The Examiner has rejected claims 17 and 18 under 35 U.S.C. §112, second paragraph, as allegedly indefinite because the claims "are drawn to a modified or mutated M-MLV reverse transcriptase with Glu190 replaced by phenylalanine. Residue 190 in M-MLV reverse transcriptase is a glutamine, Gln" (Office Action, page 6, lines 1-3).

Claims 17 and 18 have been amended to properly recite Gln190. Withdrawal of this portion of the rejection is respectfully requested.

Rejection under 35 U.S.C. § 102

The Examiner has rejected claims 1(a), 2, 9, 25, and 47-52 under 35 U.S.C. §102(b) as allegedly anticipated by Kaushik *et al.* (*Biochemistry* 38:2617-27 (1999), IDS document AS20) (Office Action, page 6). Applicants respectfully traverse this rejection.

However, in the interest of expediting prosecution of allowable subject matter, claims 1(a), 2, 9, 25, and 47-52 have been cancelled. Therefore, this rejection is rendered moot. By cancellation of these claims, Applicants do not acquiesce with the Examiner's position but only wish to advance the prosecution of the present application. Withdrawal of this portion of the rejection is respectfully requested.

Obviousness-type Double Patenting Rejection

The Examiner has provisionally rejected claims 1, 2, 9, 11, 13, 17, 21, and 47-52 under the judicially created doctrine of double patenting over claims 16, 24-26, 28, and 30-35 of copending Application No. 09/847,157. Applicants respectfully traverse this rejection. Applicants are not aware of a copending Application No. 09/847,157. However, Applicants are aware of a copending Application No. 09/845,157. If it is the Examiner's intent to cite Application No. 09/845,157, then Applicants respectfully request this rejection be held in abeyance until allowable claims have been identified. However, if the Examiner disagrees, then the Examiner is respectfully requested to further clarify the rejection based on the copending application as cited above.

Other Matters

The Examiner indicated that no references were found teaching or suggesting claims 11-22, 26-28, and 32. According to the Examiner, claims 12, 14-16, 19, 20 and 22 were objected to for depending on rejected claims and claims 11, 13, 17, 21, 26-28, and 32 were rejected for other reasons. Applicants have cancelled claims 1-10 and 23-62, amended claims 11, 13, 15, 17-19, 21, and added new claims 63-120 by way of this amendment and reply. Applicants submit that the currently pending claims 11-22 and 63-120 are not anticipated or suggested by the any of the cited references. Thus, an expedited notice of allowance is respectfully requested.

Conclusion

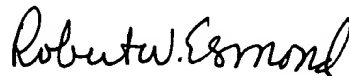
All of the stated grounds of objection and rejection have been properly traversed,

accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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Version with markings to show changes made

Claims 1-10 and 23-62 have been cancelled.

New claims 63-120 are sought to be entered.

The following claims have been amended:

11. (Once amended) The reverse transcriptase of claim [9] 63, wherein said [modified or mutated M-MLV has a] mutation [or modification] is at position Tyr64.

13. (Once amended) The reverse transcriptase of claim [9] 63, wherein said [modified or mutated M-MLV has a] mutation [or modification] is at position Arg116.

15. (Once amended) The reverse transcriptase of claim [9] 63, wherein said [modified or mutated M-MLV has a] mutation [or modification] is at position Lys152.

17. (Once amended) The reverse transcriptase of claim [9] 63, wherein said [modified or mutated M-MLV has a] mutation [or modification] is at position [Glu]Gln190.

18. (Once amended) The reverse transcriptase of claim 17, wherein [Glu]Gln190 is replaced with a phenylalanine.

19. (Once amended) The reverse transcriptase of claim [9] 63, wherein said [modified or mutated M-MLV has a] mutation [or modification] is at position Thr197.

21. (Once amended) The reverse transcriptase of claim [9] 63, wherein said [modified or mutated M-MLV has a] mutation [or modification] is at position Val223.